

The potter wasps of the Maltese Islands (Hymenoptera, Vespidae, Eumeninae)

Thomas Cassar¹, David Mifsud², Marco Selis³

1 Department of Biology, Faculty of Science, University of Malta, Msida MSD 2080, Malta **2** Institute of Earth Systems, Division of Rural Sciences and Food Systems, University of Malta, Msida MSD 2080, Malta **3** Via dei Tarquini, 22–01100 Viterbo, Italy

Corresponding author: Thomas Cassar (thomas.cassar@um.edu.mt)

Academic editor: Michael Ohl | Received 14 December 2021 | Accepted 27 February 2022 | Published 29 April 2022

<http://zoobank.org/1170E62D-D9D4-422D-AC60-843EB114B10E>

Citation: Cassar T, Mifsud D, Selis M (2022) The potter wasps of the Maltese Islands (Hymenoptera, Vespidae, Eumeninae). Journal of Hymenoptera Research 90: 201–212. <https://doi.org/10.3897/jhr.90.79373>

Abstract

The eumenine fauna of the Maltese Islands is reviewed and 17 species are asserted as occurring in the mentioned territory. Of these, *Parodontodynerus ephippium* and *Stenodynerus fastidiosissimus* are recorded for the first time from the Maltese archipelago. An annotated species list and a key to species are provided. Three doubtful records are also discussed.

Keywords

Eumeninae, Gozo, key, Malta, Mediterranean, new records

Introduction

With over 3,500 species in almost 200 genera worldwide, the subfamily Eumeninae is by far the largest within the family Vespidae, and is subdivided into two tribes: Eumenini, and the large paraphyletic tribe Odynerini (Bank et al. 2017). Though a few species may nest gregariously, the Eumeninae are by and large solitary vespids, either nesting in pre-existing cavities using mud or resin partitions, constructing free pedotrophic nest cells from mud, or burrowing into earth. The nest cells are stocked with larvae of other insects, mainly Lepidoptera and Coleoptera, rendered immobile by the female's paralytic sting, on which eumenine larvae feed ectoparasitically.

The first reference to Maltese Eumeninae was made by Alfken (1929), who mentioned *Ancistrocerus* (= *Odynerus*) *parietum*, along with another two unidentified congeners, one of which he states to be near *Ancistrocerus nigricornis* (= *Odynerus callosus*). He also mentions *Eumenes papillarius* (= *bimaculatus*). Maltese eumenines were not mentioned in the literature again until the work of Valletta (1971), who ‘confirmed’ the presence of *Ancistrocerus parietum*, also adding the common and widespread species *Eumenes mediterraneus* and *Rhynchium oculatum* to the known fauna. The work of Erlandsson (1972) was a particularly significant contribution to the knowledge of Maltese eumenines, recording an additional six species; *Leptochilus regulus*, *Stenodynerus laborans*, *Ancistrocerus biphaleratus triphaleratus*, *Tachyancistrocerus rhodensis*, *Eumenes pomiformis* and *E. sareptanus* along with the previously recorded *Rhynchium oculatum* and *Eumenes mediterraneus*. Cilia (1975) mentions *E. mediterraneus* again, as a visitor to the inflorescences of *Drimia maritima*. The works of Schembri (1980, 1985) added a further nine species and included notes on subspecies, recording for the first time the presence of *Leptochilus medanae*, *Antepipona deflenda*, *Pseudepipona tripunctata*, *Ancistrocerus longispinosus*, *Euodynerus dantici*, *E. variegatus*, *Eumenes coarctatus*, *E. dubius* and *E. lunulatus*.

The present work records an additional two species and compiles the known eumenine fauna for the Maltese Islands in the annotated list hereunder.

Methods

Eumenine material was collected from various locations across the Maltese Islands by sweep-netting vegetation and inflorescences - especially those of *Foeniculum vulgare* Mill. and *Mentha* spp. - as well as setting up malaise traps. Photographs were taken using a Canon EOS 1300D camera with a reverse Canon EF-S 18–55mm lens. A Leica MZ6 stereoscopic microscope was utilized for study of the specimens. The key was prepared after direct comparison of the specimens and some characters were extracted from Gusenleitner (1993, 1995a, 1995b, 1997, 1998a, 1999, 2000a, 2000b). Specimens are deposited within the private collection of Marco Selis in Viterbo, Italy (MSVI).

Results

Key to species of Eumeninae of the Maltese Islands

- 1 Metasoma petiolate; apical width of first tergum narrower than half of maximum width of second tergum; first tergum at least two times as long as wide 2
- Metasoma sessile; first tergum as wide as second tergum or slightly narrower; first tergum shorter 6
- 2 Setae on lower face of head and propleura very short and sparse 3
- Setae on lower face of head long and wavy; setae on propleura dense, either short or long 4

- 3 Mesoscutum with shorter setae, setae about as long as half apical width of scape. Apical lamella of T2 as long as preapical vertical step of tergite. Length of apical flagellomere of male measured on ventral margin about 1.5× as maximum width of flagellomere, ventral margin strongly concave and with sparse short bristles *Eumenes dubius*
- Mesoscutum with longer setae, setae about as long as apical width of scape. Apical lamella of T2 longer than preapical vertical step of tergite. Length of apical flagellomere of male measured on ventral margin about 2× as maximum width of flagellomere, ventral margin nearly straight and with dense long bristles *Eumenes sareptanus*
- 4 Setae on propleura much shorter than setae on lower face of head. Underside of metasoma usually entirely black from sternite 3. Apical flagellomere of male short and straight in lateral view, with short bristles at apex of ventral margin *Eumenes pomiformis*
- Setae on propleura long and wavy, similar to setae on lower face of head. At least sternites 3–4 with yellow markings. Apical flagellomere differently shaped 5
- 5 Apical lamella of second tergum yellowish. First tergum in dorsal view more elongated and less abruptly expanded in the middle. Second tergum in lateral view distinctly concave in apical third. Yellow markings more extensive *Eumenes mediterraneus*
- Apical lamella of second tergum black. First tergum in dorsal view shorter and abruptly expanded in the middle. Second tergum in lateral view not concave apically, more or less evenly convex from base to apex. Yellow markings less extended *Eumenes coarctatus*
- 6 First tergum with a transverse carina 7
- First tergum without transverse carina 10
- 7 Tegula about as long as wide, outer margin strongly convex. Transverse carina of first tergum followed by a smooth and pointless area. Second tergum apically reflexed, with a coarsely punctured preapical area. Body covered with sparse short setae *Tachyancistrocerus rhodensis*
- Tegula longer than wide, outer margin weakly convex. Transverse carina of first tergum not followed by a smooth area. Second tergum not reflexed, with punctures evenly distributed. Body covered with long and wavy setae 8
- 8 Transverse carina of first tergum evenly rounded, medial incision small. Female with four yellow bands on metasoma *Ancistrocerus longispinosus longispinosus*
- Transverse carina of first tergum concave on sides of medial incision, medial incision larger and deeper. Female with less bands on metasoma, yellow or orange 9
- 9 Two bands on metasoma in both sexes. Markings orange *Ancistrocerus biphaleratus tripolitanus*
- Three bands in female and four in male. Markings yellow *Ancistrocerus biphaleratus triphaleratus*

- 10 Second tergum with an apical lamella. First tergum slightly narrower than basal width of second tergum. Second submarginal cell obtuse basally **11**
- Second tergum not lamellate. First tergum as wide as second tergum. Second submarginal cell acute basally **12**
- 11 Clypeus with longitudinal striae, stronger in female. Anterior pronotal margin of female concave near humeri. Apical flagellomere of male with indistinct pubescence on ventral side ***Leptochilus regulus***
- Clypeus finely punctured. Anterior pronotal margin of female straight. Apical flagellomere of male with short setae in addition to pubescence on ventral side ***Leptochilus medanae***
- 12 Pronotum lacking pretegular carina, pronotal lobe weakly developed and depressed. Metanotum with small teeth on extreme sides ***Parodontodynerus ephippium***
- Pronotum with pretegular carina, pronotal lobe well developed and convex. Metanotum without teeth or, if present, larger and closer to the middle ... **13**
- 13 Submarginal carina of propodeum produced in a sharp triangular lobe above each propodeal valvula. Anterior face of pronotum with pits in the middle... **14**
- Submarginal carina of propodeum not produced in a triangular lobe above propodeal valvula. Anterior face of pronotum without pits or punctures in the middle **15**
- 14 Metanotum with a pair of sharp triangular teeth. Sides of scutellum with a dull longitudinal carina. Anterior face of pronotum with a patch of dense and coarse punctures in the middle ***Antepipona deflenda***
- Metanotum not dentate. Scutellum without carinae. Anterior face of pronotum with two pits in the middle, separated by about their diameter ***Stenodynerus fastidiosissimus***
- 15 Posterior half of mesoscutum and scutellum smooth and shiny, with very fine and sparse punctures. Propodeum without distinct dorsal carinae. Male clypeus apically very narrow, almost pointed. Extensively red with large yellow markings on sides of metasoma ***Rhynchium oculatum***
- Mesoscutum and scutellum coarsely and densely punctured on whole surface. Propodeum with distinct dorsal carinae. Male clypeus apically wider, truncate or emarginate. Different coloration **16**
- 16 Apical margin of first tergum as rest of surface, not translucent. Dorsal carinae of propodeum narrow and sharp, meeting in the middle and forming a single horizontal carina. Mandible of male with deep incision between second and third tooth. Black and red species, second tergum entirely red with three black spots ***Pseudepipona tripunctata***
- Apical margin of first tergum translucent, distinctly differentiated from rest of the surface. Dorsal carinae of propodeum forming pointed teeth on sides of metanotum, not prolonged in the middle. Mandible of male without incision. Black and yellow or black and orange species, second tergum black with an apical band **17**

- 17 Posterior lobe of tegula coarsely punctured. Metanotum entirely black. Female clypeus with longitudinal striae *Euodynerus dantici*
 – Posterior lobe of tegula sparsely and finely punctured. Metanotum entirely yellow on dorsal half. Female clypeus not striate *Euodynerus variegatus*

Annotated species list

Ancistrocerus biphaleratus (de Saussure, 1852)

Material examined. MALTA • 1♀, Buskett, 27 Feb. 2021, T. Cassar leg.; 1♂, Dingli, 2 Feb. 2020, T. Cassar leg.; 1♀, Ghajn Rihana, 15 Dec. 2019, T. Cassar leg.; 2♀♀, Ghar il-Kbir, 29 Mar. 2020, T. Cassar leg.; 1♀, Ghar il-Kbir, 5 Apr. 2020, T. Cassar leg.; 1♀, Qrendi, 29 Feb. 2020, T. Cassar leg.; 1♂, Żebbuġ, 20 Nov. 2019, T. Cassar leg.; 1♀, Żebbuġ, 20 Feb. 2020, T. Cassar leg.; 1♀, Żebbuġ, iii.2020, T. Cassar leg.

Notes. All the above cited material corresponds to the subspecies *Ancistrocerus biphaleratus tripolitanus* (von Schulthess, 1924), a taxon first recorded in the Maltese Islands by Schembri (1985) which can also be found in Cyrenaica (Libya). However, another subspecies has been recorded from the Maltese archipelago, *Ancistrocerus biphaleratus triphaleratus* (de Saussure, 1855), first by Erlandsson (1972), then confirmed by material collected by Schembri (1980). This latter taxon is more widely distributed within Europe, including Iberia, France, Sardinia (Italy), Sicily (Italy) and Greece; it is also found in Northwest Africa and Asia Minor (Carpenter, unpublished). The presence of these two subspecies in Malta was discussed by Schembri (1985).

Ancistrocerus longispinosus (de Saussure, 1855)

Material examined. MALTA • 1♀, Żebbuġ, 7 May 2020, T. Cassar leg.; 1♀, Żebbuġ, 14 May 2020, T. Cassar leg.; 1♀, Żebbuġ, 16 May 2020, T. Cassar leg.; 1♀, Żebbuġ, 20 May 2020, T. Cassar leg.; 1♀, Żebbuġ, May 2020, T. Cassar leg.

Notes. All the above cited material corresponds to the subspecies *Ancistrocerus longispinosus longispinosus* (de Saussure, 1855). The first record of this species in Malta (Schembri 1980) was published as *Ancistrocerus longispinosus hellenicus* (Blüthgen, 1957) a taxon which is no longer considered to be valid (Gusenleitner 1995a). *A. longispinosus* is widely distributed across southern Europe, from the Iberian Peninsula to European Turkey, and in Northern Africa (Carpenter, unpublished). Mature larvae were described by Tormos et al. (1998).

Antepipona deflenda (Saunders, 1853)

Material examined. MALTA • 1♂, Imselliet Valley, 5 Jun. 2021, T. Cassar leg.

Notes. Schembri (1980) recorded this species from three females and a male collected in June and July of 1977 and 1978. It is a common circum-Mediterranean species also



Figure 1. a–p Eumeninae recorded from the Maltese Islands, dorsal views **a** *Ancistrocerus biphaleratus triphaleratus* **b** *A. b. tripolitanus* **c** *A. longispinosus* **d** *Antepipona deflenda* **e** *Eumenes coarctatus* **f** *E. dubius* **g** *E. mediterraneus* **h** *E. pomiformis* **i** *E. sareptanus* **j** *Euodynerus dantici* **k** *E. variegatus* **l** *Leptochilus regulus* **m** *Parodontodynerus ephippium* **n** *Rhynchium oculatum* **o** *Stenodynerus fastidiosissimus* **p** *Tachyancistrocerus rhodensis*.

found in Northern European countries such as Czech Republic and Slovakia and its range also extends as far east as Central Asia. Individuals are highly variable in colour, some being dark while others possess abundant yellow maculations (Gusenleitner 1995b).

Eumenes coarctatus (Linnaeus, 1758)

Material examined. MALTA • 1♀, malaise trap, Fawwara, 1–8 May 2017, D. Mifsud leg.; 1♀, Imselliet Valley, 4 Jul. 2020, T. Cassar leg.; 1♂, Imselliet Valley, 19 Jul. 2020, T. Cassar leg.; 2♀♀, Mellicha (Rdum tal-Madonna), 28 Jun. 2020, T. Cassar leg.

Notes. Schembri (1980) was the first to mention this species from Malta, recording both the nominate subspecies and *E. c. lunulatus*. However, the latter is actually regarded as a junior synonym of the nominate subspecies, which is widely distributed across Europe and reaches China in the East (Gusenleitner 1999). Females are known to collect the larvae of various Geometridae and Tortricidae as larval provisions.

Eumenes dubius (de Saussure, 1852)

Material examined. None.

Notes. This species was recorded as *Eumenes dubius dubius* (de Saussure, 1852) from the Maltese Islands (Schembri 1980) on the basis of a single male and a single female collected in April 1977 and September 1975 respectively. This taxon, distributed throughout southern Europe, North Africa and Asia Minor to Central Asia, differs from the Middle Eastern subspecies *Eumenes dubius palaestinensis* Blüthgen, 1938 by the colour of the flagellum (reddish in *E. d. palaestinensis*) and a lack of an indented lamella on the second tergite (Gusenleitner 1999). It is possible that the Maltese record of this species should refer to *E. sareptanus* André, 1884, a species often confused with *E. dubius* and more common in Southern Europe. Since the specimens recorded by Schembri were not available for confirmation of their identity, *E. dubius* is momentarily maintained as present in the Maltese Islands.

Eumenes mediterraneus Kriechbaumer, 1879

Material examined. MALTA • 1♂, Buskett, 5 Jul. 2020, T. Cassar leg.; 1♀, Mqabba, 4 Jul. 2015, D. Mifsud leg.; 4♂♂, Żebbuġ, 20 May 2020, T. Cassar leg.; 1♀, Żebbuġ, 4 Jun. 2020, T. Cassar leg.

Notes. Recorded from the Maltese Islands by Valletta (1971), Erlandsson (1972), Cilia (1975) and Schembri (1980). The latter recorded the nominate subspecies, a taxon distributed from South Central to southern Europe, east to Central Asia and south to North Africa. Colour is very variable in this species, and some of the bright yellow markings may be more reduced in some individuals than others, especially those on the first abdominal tergite (Gusenleitner 1999).

Eumenes pomiformis (Fabricius, 1781)

Material examined. MALTA • 1♀, malaise trap, Fawwara, 1–8 May 2017, D. Mifsud leg.; 1♂, Imselliet Valley, 19 Jul. 2020, T. Cassar leg.; 1♀, malaise trap, Mellieħa St. Maria Estate, 25 Jul.-25 Aug. 2017, D. Mifsud leg.

Notes. Recorded by Erlandsson (1972) and Schembri (1980). Distribution range includes Central and southern Europe, North Africa, and the Middle East eastwards to Central Asia (Gusenleitner 1999). The venom proteins of this species were characterized by Baek and Lee (2010).

***Eumenes sareptanus* Andre, 1884**

Material examined. MALTA • 1♀, Żebbuġ, 29 Jul. 2020, T. Cassar leg.

Notes. Both Erlandsson (1972) and Schembri (1980) record the subspecies *Eumenes sareptanus insolatus* Müller, 1923 from Malta, a taxon whose distribution includes much of Europe, from France east to Slovakia; the nominate subspecies differs from it by having reddish legs (Gusenleitner 1999).

***Euodynerus dantici* (Rossi, 1792)**

Material examined. MALTA • 1♀, Buskett, 3 May 2020, T. Cassar leg.; 2♂♂, Buskett, 1 May 2021, T. Cassar leg.; 1♀, Dingli, 29 Jun. 2015, D. Mifsud leg.; 1♀, Dingli, 2 Jul. 2015, D. Mifsud leg.; 1♀, Imselliet Valley, 2 May 2020, T. Cassar leg.; 1♂, Imselliet Valley, 5 Jun. 2021, T. Cassar leg.; 1♀, Marfa, 25 Apr. 2014, T. Cassar leg.; 1♀, Marsaskala, 1 Jul. 2015, D. Mifsud leg.; 1♀, Marsaxlokk, 5 Jul. 2015, D. Mifsud leg.; 2♀♀, Mqabba, 4 Jul. 2015, D. Mifsud leg.; 1♀, Żejtun, 30 Jun. 2015, D. Mifsud leg.; 1♀, Żejtun, 11 Jul. 2015, D. Mifsud leg.; 1♀, Żurrieq, 2 Jul. 2015, D. Mifsud leg.; 1♀, Żurrieq, 13 Jul. 2015, D. Mifsud leg.; GOZO • 1♀, Xagħra, 20 Jun. 2015, D. Mifsud leg.

Notes. First recorded by Schembri (1980) as the nominate subspecies on the basis of a single female collected in July 1978. This species is an extremely widespread eumenine, found throughout much of Europe, from the Iberian Peninsula eastward to Ukraine and from Germany southward to Malta; it is also present in North Africa and the Oriental region. When examining Maltese eumenine material for this study, almost 20 specimens of *Euodynerus* showed characters identifiable as *E. dantici*, but also some slight differences in sculpture and remarkably constant orange markings. Examination of external characters and male genitalia, compared with those of specimens from Central Italy and Greece, did not allow for the clarification of the status of the Maltese population, therefore it is momentarily considered as a simple local variation of *E. dantici*. Examination of more specimens and molecular analysis could help to better resolve the situation.

***Euodynerus variegatus* (Fabricius, 1793)**

Material examined. MALTA • 1♂, Buskett, 20 Jun. 2020, T. Cassar leg.; 1♂, Imselliet, 15 Jun. 2020, T. Cassar leg.; 2♂♂, Imselliet Valley, 19 Jul. 2020, T. Cassar leg.; 2♂♂, Imselliet Valley, 5 Jun. 2021, T. Cassar leg.. GOZO • 1 ex., Ramla l-Hamra, 2 Oct. 2020, T. Cassar leg.

Notes. First recorded by Schembri (1980) as the nominate subspecies, a taxon distributed across southern Europe and North-Northeast Africa; other subspecies occur East to central Asia.

***Leptochilus medanae* (Gribodo, 1886)**

Material examined. None.

Notes. Schembri (1980) recorded this species on the basis of two males collected from Ghadira in August 1977. This taxon occurs throughout southern Europe – namely the Iberian Peninsula, France, Italy (including Sardinia and Sicily) and Malta; it also occurs in North Africa, Israel and Jordan, where the reddish subspecies *L. m. falkenhayni* (Dusmet, 1917) inhabits desert areas (Gusenleitner 1993).

***Leptochilus regulus* (de Saussure, 1855)**

Material examined. MALTA • 1♀, Dingli, Ġebel Ciantar, 20 Jun. 2021, T. Cassar leg.; 1♀, Imselliet Valley, 19 Jul. 2020, T. Cassar leg.; 1♂, Imselliet Valley, 5 Jun. 2021, T. Cassar leg.; 2♀♀, malaise trap, Mellieħa St. Maria Estate, 25 Jul.-25 Aug. 2017, D. Mifsud leg.; 1♂, Imsida, Wied Ghollieqa, 1 Sep. 2020, T. Cassar leg.

Notes. Recorded by Erlandsson (1972) and Schembri (1980). This species' distributional range includes much of southern Europe as well as a few northern countries such as Austria and Slovakia; it also occurs in North Africa and the Middle East. *Leptochilus regulus* is another eumenine whose colouration may vary greatly between individuals; some lacking much of the yellow markings from the clypeus down to the second tergite, instead having those areas completely black (Gusenleitner 1993).

***Parodontodynerus ephippium* (Klug, 1817)**

Material examined. MALTA • 1♀, Imselliet Valley, 19 Jul. 2020, T. Cassar leg.; 1♂ & 1♀, Imselliet Valley, 24 May 2020, T. Cassar leg.; 1♂, Imselliet Valley, 2 May 2021, T. Cassar leg.; 1♂, Mtaħleb, 29 Jun. 2014, T. Cassar leg.

Notes. New record for the Maltese Islands. The above material belongs to the nominate subspecies *Parodontodynerus ephippium ephippium* (Klug, 1817) which is present throughout southern Europe, as well in Southwest Asia to Iran (Gusenleitner 2000b). In the Maltese Islands, this species seems to be most active between the warm months of May and July.

***Pseudepipona tripunctata* (Fabricius, 1787)**

Material examined. None.

Notes. First recorded by Schembri (1980) on the basis of four females collected in June and August 1974–1977. It occurs in southern Europe, most notably Sicily and Malta; throughout North Africa, Egypt and also in Israel (Gusenleitner 1998a).

***Rhynchium oculatum* (Fabricius, 1781)**

Material examined. MALTA • 1♂, Buskett, 20 Jun. 2020, T. Cassar leg.; 1♀, Żebbuġ, 15 Jul. 2013, T. Cassar leg.; 1♀, Żebbuġ, 9 Jun. 2014, T. Cassar leg.; 1♂, Żebbuġ, 12 May 2020, T. Cassar leg.; 2♂♂, Żebbuġ, 17 Jun. 2020, T. Cassar leg.. GOZO • 1♀, Sannat, Ta' Ċenċ, 2 Oct. 2020, T. Cassar leg.

Notes. This species was previously recorded by Valletta (1971), Erlandsson (1972) and Schembri (1980). The Maltese Islands are inhabited by the nominate subspecies *Rhynchium oculatum oculatum* (Fabricius, 1781), a taxon occurring in southern Europe and North Africa. Another subspecies occurs in Europe - *Rhynchium oculatum hebraeum* Giordani Soika, 1952, which inhabits the Balkans and the Middle East (Gusenleitner 1998b; Castro and Sanza 2009). *R. oculatum*, the largest eumenine in the Maltese Islands, is very common locally and often nests within pre-existing cavities such as hollow reeds and crevices in wood. Its parasitoid *Macrosiagon ferruginea* (Coleoptera: Ripiphoridae) is also present in the Maltese Islands.

***Stenodynerus fastidiosissimus* (de Saussure, 1855)**

Material examined. Malta • 1♀, Imselliet Valley, 5 Jun. 2021, T. Cassar leg.

Notes. New record for the Maltese Islands. The subspecies *Stenodynerus fastidiosissimus laborans* (Costa, 1882) was recorded by Erlandsson (1972), though it is highly likely that this was on the basis of misidentified specimens (see discussion below). Without examining Erlandsson's specimens it is not possible to know if they truly correspond to the typical form of *S. fastidiosissimus*, as does the material mentioned above, or if they belong to some other taxon. The distribution of the nominal subspecies includes North Africa and Southern Europe (Gusenleitner 2000a).

***Tachyancistrocerus rhodensis* (de Saussure, 1855)**

Material examined. None.

Notes. This species was recorded by Erlandsson (1972) and Schembri (1980). Its distribution range includes Sicily, Malta and Southeast Europe (including Rhodes); it is also found in Cyprus and the Middle East. Individuals of this species may vary somewhat in tergite morphology (Gusenleitner 1998b).

Discussion

Most taxa mentioned in this study are circum-Mediterranean species widespread in Europe (particularly Southern Europe), North Africa and Asia Minor, often extending their range either into the Middle East or Central Asia. This is the case for *Ancistrocerus*

biphaleratus triphaleratus, *Ancistrocerus longispinosus longispinosus*, *Antepipona deflenda*, *Eumenes coarctatus coarctatus*, *Eumenes dubius dubius*, *Eumenes mediterraneus mediterraneus*, *Eumenes pomiformis*, *Eumenes sareptanus*, *Euodynerus dantici dantici*, *Euodynerus variegatus*, *Leptochilus medanae*, *Leptochilus regulus*, *Parodontodynerus ephippium*, *Rhynchium oculatum*, *Stenodynerus fastidiosissimus* and *Tachyancistrocerus rhodensis*. Other taxa have a much more restricted distribution in Europe, usually limited to very few southern territories, being more widespread in North Africa and/or the Middle East – such as *Ancistrocerus biphaleratus tripolitanus* and *Pseudepipona tripunctata*.

Three previously recorded taxa from the Maltese Islands have not been included in the above annotated species list. Erlandsson (1972) recorded *Stenodynerus fastidiosissimus laborans* (Costa, 1882) on the basis of four males collected from St Julians in July 1970. However, this taxon is only known to occur in Sardinia and Corsica and may be difficult to distinguish from other similar taxa (Gusenleitner 2000a). This taxon is being excluded as occurring in Malta since it was never mentioned again after Erlandsson (1972) and because of its very restricted distribution range. For a similar reason, *Eumenes papillarius* (Christ, 1971), mentioned by Alfken (1929) as its synonym “*Eumenes coarctatus* L. var. *bimaculatus* André”, is also excluded from the local fauna, as it has not been mentioned again in the 92 years since its first and only record, and there is a very high probability that this taxon was another misidentified species of *Eumenes*. *Ancistrocerus parietum* (Linnaeus, 1758) was recorded by Alfken (1929) and Valletta (1971), but this taxon has been frequently misidentified in the past, especially due to the difficulty in distinguishing between the males of a number of related species in the *parietum* group (Gusenleitner 1995a). Valletta (1971) also states that this species is “common”, yet it has not been collected by three separate workers of Maltese vespids (including the authors of the present work) since then, which supports the hypothesis that this species’ records may have indeed been based on a misidentification.

References

- Alfken JD (1929) Ueber eine Hymenopteren-Ausbeute von Malta. Mitteilungen aus dem entomologischen Verein Bremen. 15–17. Bericht für die Jahre 1927–1929: 9–11.
- Baek JH, Lee SH (2010) Identification and characterization of venom proteins of two solitary wasps, *Eumenes pomiformis* and *Orancistrocerus drewseni*. Toxicon 56(4): 554–562. <http://doi.org/10.1016/j.toxicon.2010.05.014>
- Bank S, Sann M, Mayer C, Meusemann K, Donath A, Podsiadlowski L, Kozlov A, Petersen M, Krogmann L, Meier R, Rosa P, Schmitt T, Wurdack M, Liu S, Zhou X, Misof B, Peters RS, Niehuis O (2017) Transcriptome and target DNA enrichment sequence data provide new insight into the phylogeny of vespid wasps (Hymenoptera: Aculeata: Vespidae). Molecular Phylogenetics and Evolution 116: 213–226. <http://doi.org/10.1016/j.ympev.2017.08.020>
- Castro L, Sanza F (2009) Aportación al conocimiento de los Vespidae (Hymenoptera) de Sierra Nevada (España), con alguno comentarios taxonómicos. Boletín Sociedad Entomológica Aragonesa 45: 259–278.

- Cilia J (1975) Insect visitors to the seaside squill (*Urginea maritima* (L.) Baker). The Maltese Naturalist 2(2): 37–38.
- Erlandsson S (1972) Hymenoptera Aculeata from the European parts of the Mediterranean Countries. Eos Madrid 48: 11–93.
- Gusenleitner J (1993) Bestimmungstabellen mittel- und südeuropäischer Eumeniden (Vespoidea, Hymenoptera) Teil 1: Die Gattung *Leptochilus* SAUSSURE 1852. Linzer Biologische Beiträge 25/2: 745–769.
- Gusenleitner J (1995a) Bestimmungstabellen mittel- und südeuropäischer Eumeniden (Vespoidea, Hymenoptera) Teil 4: Die Gattung *Ancistrocerus* WESMAEL 1836 mit einem Nachtrag zum Teil 1: Die Gattung *Leptochilus* SAUSSURE. Linzer Biologische Beiträge 27/2: 753–775.
- Gusenleitner J (1995b) Bestimmungstabellen mittel- und südeuropäischer Eumeniden (Vespoidea, Hymenoptera) Teil 3: Die Gattung *Antepipona* SAUSSURE 1855. Linzer Biologische Beiträge 27/1: 183–189.
- Gusenleitner J (1997) Bestimmungstabellen mittel- und südeuropäischer Eumeniden (Vespoidea, Hymenoptera) Teil 6. Die Gattungen *Euodynerus* DALLA TORRE 1904, *Syneuodynerus* BLÜTHGEN 1951 und *Chlorodynerus* BLÜTHGEN 1951. Linzer Biologische Beiträge 29/1: 117–135.
- Gusenleitner J (1998a) Bestimmungstabellen mittel- und südeuropäischer Eumeniden (Vespoidea, Hymenoptera) Teil 9. Die Gattung *Pseudepipona* SAUSSURE. Linzer Biologische Beiträge 30/2: 487–495.
- Gusenleitner J (1998b) Vespoidea und Sapygidae gesammelt auf der Insel Samos (Hymenoptera: Eumenidae, Masaridae, Sapygidae). Linzer Biologische Beiträge 30/1: 155–161.
- Gusenleitner J (1999) Bestimmungstabellen mittel- und südeuropäischer Eumeniden (Vespoidea, Hymenoptera) Teil 11. Die Gattungen *Discoelius* LATREILLE 1809, *Eumenes* LATREILLE 1802, *Katamenes* MEADE-WALDO 1910, *Delta* SAUSSURE 1855, *Ischnogasteroides* MARGRETTI 1884 und *Pareumenes* SAUSSURE 1855. Linzer Biologische Beiträge 31/2: 561–584.
- Gusenleitner J (2000a) Bestimmungstabellen mittel- und südeuropäischer Eumeniden (Vespoidea, Hymenoptera) Teil 13: Die Gattung *Stenodynerus* SAUSSURE 1863. Linzer Biologische Beiträge 32/1: 29–41.
- Gusenleitner J (2000b) Bestimmungstabellen mittel- und südeuropäischer Eumeniden (Vespoidea, Hymenoptera) Teil 14. Der Gattungsschlüssel und die bisher in dieser Reihe nicht behandelten Gattungen und Arten. Linzer Biologische Beiträge 32/1: 43–65.
- Schembri SP (1980) Vespoidea from the Maltese Islands (Hymenoptera Aculeata). Bollettino della Società Entomologica Italiana 112(4–6): 90–93.
- Schembri SP (1985) The Vespoidea of the Maltese Islands: remarks and additions (Hymenoptera Aculeata). Bollettino della Società Entomologica Italiana 117(4–7): 115–116.
- Tormos J, Asís JD, Gayubo, Torres F (1998) Description of the mature larvae of *Ancistrocerus kitcheneri* (Dusmet, 1917), *A. longispinosus longispinosus* (Saussure, 1885) and redescription of that of *A. trifasciatus* (Müller, 1776). (Hymenoptera, Vespidae). Nouvelle Revue d'Entomologie (NS) 15: 31–36.
- Valletta A (1971) A preliminary list of the Hymenoptera Aculeata (excluding ants) of the Maltese Islands. Entomologist's Monthly Magazine 107: 45–46.